

WHAT IS CLAIMED IS:

1. A purified and isolated polypeptide having the primary structural conformation and 5 biological properties of naturally-occurring metalloproteinase inhibitor.

10 2. A polypeptide according to Claim 1 wherein said polypeptide is the product of prokaryotic or eucaryotic expression of an exogenous DNA sequence.

15 3. A polypeptide according to Claim 1 further characterized by being free of association with any mammalian protein.

20 4. A polypeptide according to Claim 2 wherein the exogenous DNA sequence is a cDNA sequence.

25 5. A polypeptide according to Claim 2 wherein the polypeptide is bovine metalloproteinase inhibitor.

30 6. A polypeptide according to Claim 2 wherein the exogenous DNA sequence is a genomic DNA sequence.

35 7. A polypeptide according to Claim 2 wherein the exogenous DNA sequence is carried on an autonomously replicating DNA plasmid or viral vector.

8. A polypeptide according to Claim 1 possessing part or all of the primary structural conformation of human metalloproteinase inhibitor as set forth in Figure 2 or any naturally occurring allelic variant thereof.

9. A polypeptide according to Claim 1 which has the immunological properties of naturally-occurring metalloproteinase inhibitor.

5 10. A polypeptide according to Claim 1 which has the in vitro biological activity of naturally-occurring metalloproteinase inhibitor.

10 11. A polypeptide according to Claim 1 further characterized by being covalently associated with a detectable label substance.

15 12. A DNA sequence for use in securing expression in a procaryotic or eucaryotic host cell of a polypeptide product having at least a part of the primary structural conformation and one or more of the biological properties of naturally-occurring metalloproteinase inhibitor, said DNA sequence selected from among:

20 (a) the DNA sequence set out in Figure 1 or Figure 2 or their complementary strands;  
(b) DNA sequences which hybridize to the DNA sequences defined in (a) or fragments thereof; and  
(c) DNA sequences which, but for the 25 degeneracy of the genetic code, would hybridize to the DNA sequences defined in (a) and (b).

30 13. A procaryotic or eucaryotic host cell transformed or transfected with a DNA sequence according to Claim 12 in a manner allowing the host cell to express said polypeptide product.

35 14. A polypeptide product of the expression of a DNA sequence of Claim 12 in a procaryotic or eucaryotic host.

15. A purified and isolated DNA sequence  
coding for procaryotic or eucaryotic host expression of  
a polypeptide having the primary structural conformation  
and biological properties of metalloproteinase  
5 inhibitor.

16. A cDNA sequence according to Claim 15.

17. A genomic DNA sequence according to  
10 Claim 15.

18. A DNA sequence according to Claim 15  
wherein said DNA sequence codes for human  
metalloproteinase inhibitor.

15 19. A DNA sequence according to Claim 18 and  
including one or more codons preferred for expression in  
E. coli cells.

20 20. A DNA sequence according to Claim 15  
having the sequence set out in Figure 2.

21. A DNA sequence according to Claim 15 and  
including one or more codons preferred for expression in  
25 yeast cells.

22. A DNA sequence according to Claim 15  
covalently associated with a detectable label substance.

30 23. A DNA sequence coding for a polypeptide  
fragment of polypeptide analog of naturally-occurring  
metalloproteinase inhibitor.

35 24. A DNA sequence as in Claim 23 coding for  
methionyl metalloproteinase inhibitor.

25. A biologically functional plasmid or  
viral DNA vector including a DNA sequence according to  
Claim 12.

5 26. A procaryotic or eucaryotic host cell  
stably transformed or transfected with a DNA vector  
according to Claim 25.

10 27. A polypeptide product of the expression  
in a procaryotic or eucaryotic host cell of a DNA  
sequence according to Claim 15.

15 28. A synthetic polypeptide having part or  
all of the amino acid sequence as set forth in Figure 2  
and having one or more of the in vitro biological  
activities of naturally-occurring metalloproteinase  
inhibitor.

20 29. A synthetic polypeptide having part or  
all of the secondary conformation of part or all of the  
amino acid sequence set forth in Figure 2 and having a  
biological property of naturally-occurring human  
metalloproteinase inhibitor.

25 30. A process for the production of a  
polypeptide having part or all of the primary structural  
conformation and one or more of the biological  
properties of naturally occurring metalloproteinase  
inhibitor, said process comprising:  
30 growing, under suitable nutrient conditions,  
procaryotic or eucaryotic host cells transformed or  
transfected with a DNA vector according to Claim 25, and  
isolating desired polypeptide products of the expression  
of DNA sequences in said vector.

31. ~~Purified and isolated human metalloproteinase inhibitor free of association with any human protein in glycosylated or nonglycosylated form.~~

5 32. A pharmaceutical composition comprising an effective amount of a polypeptide according to Claim 1 and a pharmaceutically acceptable diluent, adjuvant or carrier.

10 33. ~~A method for inhibiting tumor cell dissemination in a mammal comprising administering an effective amount of a polypeptide according to Claim 1.~~

15 34. ~~A method for treating rheumatoid arthritis in a mammal comprising administering an effective amount of a polypeptide according to Claim 1.~~

20 35. ~~A DNA sequence coding for an analog of human metalloproteinase inhibitor selected from the group consisting of:~~

25 36. ~~A polypeptide product of the expression in a procaryotic or eucaryotic host cell of a DNA sequence according to Claim 35.~~

30 37. ~~A preparation of MI which is greater than 95% pure and which comprises less than 0.5 ng of pyrogen per 0.5 mg of metalloproteinase inhibitor.~~

35 38. ~~An antibody specifically binding metalloproteinase inhibitor.~~

39. An antibody as in Claim 38 wherein said antibody is a monoclonal antibody.

5

add  
 $\alpha^4$

add  
 $\gamma^2$

10

15

20

25

30

35